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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/516,863	12/03/2004	Martin Willem Klomp	PTT-199(402865US)	8551

7265 7590 03/07/2006

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EXAMINER	
KHAN, SUHAIL	

ART UNIT	PAPER NUMBER
2686	

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/516,863	KLOMP ET AL.	
	Examiner	Art Unit	
	Suhail Khan	2686	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11/25/2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *26-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *26-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 26-50 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6088002 to Johnson et al., in view of U.S. Patent App. Pub. No. 2003/0003959 to Tsui et al.

Referring to **claim 26**, Johnson et al. disclose a telecommunications radio system for mobile communication services (col 3, lines 1-5, radio, antenna system) comprising a first base station (col 1, lines 30-33, base stations; col 4, lines 1-5, radio tower) having a plurality of antennas and located at a site (col 4, lines 5-10, dipole antenna elements), wherein: the site comprises a structure with a height of at least 50m from erection ground (col 2, lines 43-49, antenna system is modular and can be configured, mast variants, thus the height of the structure can be varied and made greater than or equal to 50 m); the base station is located on the site at a height of at least 50m from erection ground (col 4, lines 1-5, radio tower, col 2, lines 43-49, antenna system is modular and can be configured, mast variants, thus the height of the structure can be varied so that the tower/base station height is greater than or equal to 50 m); and at least two of the antennas are arranged in a first ring situated in a first plane orthogonal to and concentric with a longitudinal axis of the site (col 3, lines 10-12, the outer ring of panels is connected to an inner ring, panel consists of vertical transformer beams on which dipole elements are mounted; orthogonal plane of the longitudinal axis implies vertical direction).

Johnson et al. do not disclose the base station covering an area subdivided into a multitude of sectors by the antennas. The examiner maintains that the concept of the base station covering an area subdivided into a multitude of sectors by the antennas was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show an antenna pattern partitioned into sectors (page 2, paragraph 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show a telecommunications radio system for mobile communication services comprising a first base station having a plurality of antennas and located at a site, the base station covering an area subdivided into a multitude of sectors by the antennas, wherein: the site comprises a structure with a height of at least 50m from erection ground; the base station is located on the site at a height of at least 50m from erection ground; and at least two of the antennas are arranged in a first ring situated in a first plane orthogonal to and concentric with a longitudinal axis of the site, as taught by Tsui et al, the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Referring to **claim 27**, Johnson et al. disclose the telecommunications radio system recited in claim 26 wherein the height of the site is the range of 90m to 320m from erection ground and the base station is located on the site at a height in the range of 90m to 320m from erection ground (col 4, lines 1-5, radio tower, col 2, lines 43-49, antenna system is modular and can be configured, mast variants, thus the height of the structure can be varied so that the tower/base station height is in the 90m to 320m range).

Referring to **claim 28**, Johnson et al. disclose the telecommunications radio system recited in claim 27 (col 3, lines 1-5, radio, antenna system). Johnson et al. do not disclose that each sector is served by a separate antenna. The examiner maintains that the concept that each sector is served by a separate antenna was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show a phased array multiple antenna sectors (page 2, paragraph 28; phased array entails sectors respective to antennas).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show each sector served by a separate antenna, as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Referring to **claim 29**, Johnson et al. disclose the telecommunications radio system recited in claim 27 (col 3, lines 1-5, radio, antenna system) wherein at least one of the antennas is a phase-controlled antenna (col 3, lines 66-67, phased array antenna).

Referring to **claim 30**, Johnson et al. disclose the telecommunications radio system recited in claim 29 (col 3, lines 1-5, radio, antenna system). Johnson et al. do not disclose that the multitude of sectors comprises six sectors. The examiner maintains that the concept that the multitude of sectors comprises six sectors was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show 24 sectors (page 2, paragraph 28, 24 sectors comprise six sectors).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show the telecommunications radio system wherein the multitude of sectors comprises six sectors, as taught by Tsui et al., the motivation being

sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Referring to **claim 31**, Johnson et al. disclose the telecommunications radio system recited in claim 29 (col 3, lines 1-5, radio, antenna system). Johnson et al. do not disclose that the multitude of sectors comprises 12 sectors. The examiner maintains that the concept that the multitude of sectors comprises 12 sectors was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show 24 sectors (page 2, paragraph 28, 24 sectors comprise 12 sectors).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show the telecommunications radio system wherein the multitude of sectors comprises 12 sectors, as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Referring to **claim 32**, Johnson et al. disclose the telecommunications radio system recited in claim 29 (col 3, lines 1-5, radio, antenna system). Johnson et al. do not disclose that the multitude of sectors comprises 24 sectors. The examiner maintains that the concept that the multitude of sectors comprises 24 sectors was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show 24 sectors (page 2, paragraph 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show telecommunications radio system wherein the multitude of sectors comprises 24 sectors, as taught by Tsui et al., the motivation being

sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Referring to **claim 33**, Johnson et al. disclose a telecommunications radio system recited in claim 29 (col 3, lines 1-5, radio, antenna system). Johnson et al. do not disclose that the multitude of sectors comprises 48 sectors. The examiner maintains that the concept that the multitude of sectors comprises 48 sectors was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show 72 beams over 360 degrees of azimuthal coverage (page 3, paragraph 34, 72 beams form 72 sectors, 72 sectors comprise 48 sectors).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show the telecommunications radio system wherein the multitude of sectors comprises 48 sectors, as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Referring to **claim 34**, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 26 wherein at least one of the antennas is arranged in a second ring in a second plane orthogonal to and concentric with the longitudinal axis of the site, the second ring having a larger diameter than the first ring (col 3, lines 10-12, the outer ring of panels is connected to an inner ring, panel consists of vertical transformer beams on which dipole elements are mounted; orthogonal plane of the longitudinal axis implies vertical direction).

Referring to **claim 35**, Johnson et al. disclose the telecommunications radio system recited in claim 34 (col 3, lines 1-5, radio, antenna system) in which the first plane is the same as

the second plane (col 3, lines 10-12, the outer ring of panels is connected to an inner ring, panel consists of vertical transformer beams on which dipole elements are mounted; orthogonal plane of the longitudinal axis implies vertical direction).

Referring to **claim 36**, Johnson et al. disclose the telecommunications radio system recited in claim 35 (col 3, lines 1-5, radio, antenna system) wherein a number of the antennas on the second ring is larger than a number of the antennas on the first ring (col 3, lines 10-2, the outer ring of panels is connected to an inner ring, panel consists of vertical transformer beams on which dipole elements are mounted; orthogonal plane of the longitudinal axis implies vertical direction; col 2, lines 50-54, modifiable variants, thus antennas can be added if needed).

Referring to **claim 37**, Johnson et al. disclose the telecommunications radio system recited in claim 36 (col 3, lines 1-5, radio, antenna system) wherein at least one of the antennas on the second ring has a horizontal angular range that is smaller than a horizontal angular range of the antennas on the first ring (col 2, lines 60-67, requirements may vary with different capacity or range or beam tilts; col 4, lines 32-35, different patterns are provided for antenna system to provide different angles at the connection, thus angles can be varied to have horizontal angular range of the antennas on the second ring smaller than that on the first ring).

Referring to **claim 38**, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 37 wherein at least one of the antennas on the first ring has a vertical aperture angle in the range of 8 to 12 degrees (col 2, lines 60-67, requirements may vary with different capacity or range or beam tilts; col 4, lines 32-35, different patterns are provided for antenna system to provide different angles at the connection, thus angles can be varied).

Referring to **claim 39**, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 37 wherein at least one antenna on the second ring has a vertical aperture angle in the range of 3 to 6.5 degrees (col 2, lines 60-67, requirements may vary with different capacity or range or beam tilts; col 4, lines 32-35, different patterns are provided for antenna system to provide different angles at the connection, thus angles can be varied).

Referring to **claim 40**, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 37; varying requirements with different capacity or range or beam tilts (col 2, lines 60-67) and that the outer ring of panels is connected to an inner ring, panel consists of vertical transformer beams on which dipole elements are mounted; orthogonal plane of the longitudinal axis implies vertical direction (col 3, lines 10-12). Johnson et al. do not disclose that the area is subdivided into 24 sectors by the antennas on the first concentric ring and 72 sectors by antennas on the second concentric ring. The examiner maintains that the concept of the area being subdivided into 24 sectors by antennas on the first concentric ring and 72 sectors by antennas on the second concentric ring was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show 24 sectors (page 2, paragraph 28) and 72 beams over 360 degrees of azimuthal coverage (page 3, paragraph 34, 72 beams form 72 sectors).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show the telecommunications radio system wherein the area is subdivided into 24 sectors by antennas on the first ring and 72 sectors by antennas on the

second ring, as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Referring to **claim 41**, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 37 and antennas with modifiable variants (col 2, lines 35-40; col 2, lines 50-55). Johnson et al. do not disclose that the shape and/or size of one or more sectors can be changed by switching on or off one or more antennas. The examiner maintains that the concept that the shape and/or size of one or more sectors can be changed by switching on or off one or more antennas was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show one or more antennas (page 2, paragraph 20) and an antenna pattern partitioned into sectors (page 2, paragraph 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show the telecommunications radio system wherein the shape and/or size of one or more sectors can be changed by switching on or off one or more antennas (antennas are modifiable, sectors depend on antennas), as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Referring to **claim 42**, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 37 and antennas with modifiable variants (col 2, lines 35-40; col 2, lines 50-55). Johnson et al. do not disclose that the shape and/or size of one or more sectors can be changed by changing the horizontal angular range of one or more antennas. The examiner maintains that the concept that the shape and/or size of one or more

sectors can be changed by changing the horizontal angular range of one or more antennas was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show one or more antennas (page 2, paragraph 20) and an antenna pattern partitioned into sectors (page 2, paragraph 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show the telecommunications radio system in which the shape and/or size of one or more sectors can be changed by changing the horizontal angular range of one or more antennas (antennas are modifiable, sectors depend on antennas), as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Referring to **claim 43**, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 37 and antennas with modifiable variants (col 2, lines 35-40; col 2, lines 50-55). Johnson et al. do not disclose that the shape and/or size of one or more sectors can be changed by changing the vertical aperture angle of one or more antennas. The examiner maintains that the concept that the shape and/or size of one or more sectors can be changed by changing the vertical aperture angle of one or more antennas was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show one or more antennas (page 2, paragraph 20) and an antenna pattern partitioned into sectors (page 2, paragraph 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show the telecommunications radio system in which the shape and/or size of one or more sectors can be changed by changing the vertical aperture angle

of one or more antennas (antennas are modifiable, sectors depend on antennas), as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Referring to **claim 44**, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 37 wherein at least one of the antennas is arranged in a third plane orthogonal to the longitudinal axis of the site so as to cover an area in a proximity zone of the site, the third plane being located below a height of 50m from the erection ground (col 3, lines 10-12, the outer ring of panels is connected to an inner ring, panel consists of vertical transformer beams on which dipole elements are mounted; orthogonal plane of the longitudinal axis implies vertical direction; col 4, lines 1-5, radio tower, col 2, lines 43-49, antenna system is modular and can be configured, mast variants, thus the height of the structure can be varied so that the third orthogonal plane is located below a height of 50m).

Referring to **claim 45**, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 37 and modifiable variations based on traffic demand (col 2, lines 50-55) and different requirements like capacity (col 2, lines 63-66). Johnston et al. do not disclose that a total number of sectors needed to cover the area is calculated as a function of the size of each sector and the required field strength in said each sector. The examiner maintains that the concept that a total number of sectors needed to cover the area is calculated as a function of the size of each of said sectors and a required field strength in each said sector was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show antennas (page 2, paragraph 20); an antenna pattern partitioned into sectors and the relation between sectors and frequency (page 2, paragraph 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show the telecommunications radio system in which the total number of sectors needed to cover the area is calculated as a function of the size of each of said sectors and the required field strength in said each sector as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Referring to **claim 46**, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 37 in which all of the antennas operate at one frequency (col 3, lines 1-4, coherent signal access).

Referring to **claim 47**, Johnson et al. disclose the telecommunications radio system (col 3, lines 1-5, radio, antenna system) recited in claim 46 wherein a second base station operating at a different frequency, from said one frequency, is situated within the area (col 3, lines 50-60, traffic demand changes, new antennas).

Referring to **claim 48**, Johnson et al. disclose a base station for use in a telecommunications radio system (col 3, lines 1-5, radio, antenna system; col 2, lines 56-60, tower, antenna installation at each site), the base station having a plurality of antennas and located (col 4, lines 5-10, dipole antenna elements) and located at a site (col 2, lines 56-60, tower, antenna installation at each site), the base station covering an area (col 2, lines 60-67, range), wherein the site comprises a structure with a height of at least 50 m from erection ground

(col 2, lines 43-49, antenna system is modular and can be configured, mast variants, thus the height of the structure can be varied and made greater than or equal to 50 m), the base station is located on the site at a height of at least 50m from erection ground (col 4, lines 1-5, radio tower, col 2, lines 43-49, antenna system is modular and can be configured, mast variants, thus the height of the structure can be varied so that the tower/base station height is greater than or equal to 50 m) and the at least two antennas are arranged in a ring situated in a plane orthogonal to and concentric with a longitudinal axis of the site (col 3, lines 10-12, the outer ring of panels is connected to an inner ring, panel consists of vertical transformer beams on which dipole elements are mounted; orthogonal plane of the longitudinal axis implies vertical direction). Johnson et al. do not disclose the coverage area being subdivided into a multitude of sectors. The examiner maintains that the concept of the coverage area being subdivided into a multitude of sectors was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show an antenna pattern partitioned into sectors (page 2, paragraph 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show a base station for use in a telecommunications radio system, the base station having a plurality of antennas and located at a site, the base station covering an area subdivided into a multitude of sectors by the antennas, wherein: the site comprises a structure with a height of at least 50m from erection ground; the base station is located on the site at a height of at least 50m from erection ground; and at least two of the antennas are arranged in a ring situated in a plane orthogonal to and concentric with a

longitudinal axis of the site, as taught by Tsui et al, the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Referring to **claim 49**, Johnson et al. disclose an antenna for use in a base station for use in a telecommunications radio system (col 3, lines 1-5, radio, antenna system) for mobile communication services, the base station being located at a site (col 2, lines 56-60, tower, antenna installation at each site), the base station covering an area (col 2, lines 60-67, range), wherein the site comprises a structure with a height of at least 50m from erection ground (col 2, lines 43-49, antenna system is modular and can be configured, mast variants, thus the height of the structure can be varied and made greater than or equal to 50 m), the base station is located on the site at a height of at least 50m from erection ground (col 4, lines 1-5, radio tower, col 2, lines 43-49, antenna system is modular and can be configured, mast variants, thus the height of the structure can be varied so that the tower/base station height is greater than or equal to 50 m) and the antenna and at least one other antenna being arranged in a first concentric ring in a first orthogonal plane of the longitudinal axis of the site (col 3, lines 10-12, the outer ring of panels is connected to an inner ring, panel consists of vertical transformer beams on which dipole elements are mounted; orthogonal plane of the longitudinal axis implies vertical direction). Johnson et al. do not disclose the coverage area being subdivided into a multitude of sectors. The examiner maintains that the concept of the coverage area being subdivided into a multitude of sectors was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show an antenna pattern partitioned into sectors (page 2, paragraph 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show n antenna for use in a base station in a telecommunications radio system for mobile communication services, the base station being located at a site, the base station covering an area subdivided into a multitude of sectors with at least one of the sectors being served by the antenna, wherein: the site comprises a structure with a height of at least 50m from erection ground; the base station is located on the site at a height of at least 50m from erection ground; and the antenna and at least one other antenna are arranged in a ring situated in a plane orthogonal to and concentric with a longitudinal axis of the site, as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Referring to **claim 50**, Johnson et al. disclose a mobile network comprising a telecommunications radio system for mobile communication services (col 3, lines 1-5, radio, antenna system; col 1, lines 26-29, cellular mobile telephony), the system having at least one base station (col 2, lines 56-60, tower), the base station having a plurality of antennas (col 4, lines 5-10, dipole antenna elements), the base station being located at a site (col 2, lines 56-60, tower, antenna installation at each site) and covering an area (col 2, lines 60-67, range), wherein the site comprises a structure having a height of at least 50m from erection ground (col 2, lines 43-49, antenna system is modular and can be configured, mast variants, thus the height of the structure can be varied and made greater than or equal to 50 m), the base station is located on the site at a height of at least 50m from erection ground (col 4, lines 1-5, radio tower, col 2, lines 43-49, antenna system is modular and can be configured, mast variants, thus the height of the structure can be varied so that the tower/base station height is greater than or equal to 50 m) and

the at least two antennas are arranged a first concentric ring in a first orthogonal plane of the longitudinal axis of the site (col 3, lines 10-12, the outer ring of panels is connected to an inner ring, panel consists of vertical transformer beams on which dipole elements are mounted; orthogonal plane of the longitudinal axis implies vertical direction). Johnson et al. do not disclose the coverage area being subdivided into a multitude of sectors. The examiner maintains that the concept of the coverage area being subdivided into a multitude of sectors was well known in the art as taught by Tsui et al.

In a similar field of endeavor, Tsui et al. show an antenna pattern partitioned into sectors (page 2, paragraph 28).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Johnson et al. to show a mobile network comprising a telecommunications radio system for mobile communication services, the system having at least one base station, the base station having a plurality of antennas, the base station being located at a site and covering an area subdivided into a multitude of sectors by the antennas, wherein: the site comprises a structure having a height of at least 50m from erection ground; the base station is located on the site at a height of at least 50m from the erection ground; and at least two of the antennas are arranged in a ring situated in a plane orthogonal to and concentric with a longitudinal axis of the site, as taught by Tsui et al., the motivation being sectorized planning helps in efficiently increasing downstream transmission capacity (page 2, paragraph 28).

Response to Arguments

3. Applicant's arguments filed 11/25/2005 have been fully considered but they are not persuasive.

Applicant argues that cited prior art does not disclose the height of the antenna system as claimed. Examiner respectfully disagrees. In col 4, lines 1-5, radio tower, col 2, lines 43-49, it is shown that the antenna system is modular and can be configured, mast variants, thus the height of the structure can be varied so that the tower/base station height is greater than or equal to 50 m. Applicant also argues that in claims 36, 48, 49 and 50 "orthogonal to....a longitudinal axis of the site" refers to being "horizontally aligned". Examiner would like to clarify that by vertical direction examiner meant the ring inclined in a vertical direction which is the same as horizontal direction as argued by applicant and as shown in figure 2/ col 3, lines 10-12 of Johnson et al.

4. Examiner would like to point out to the Applicant that the application number for this case is **10/516863**. It appears that some documents previously filed with the USPTO contain an incorrect application number.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suhail Khan whose telephone number is (571) 272-7910. The examiner can normally be reached on M-F from 8 am to 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild, can be reached at (571) 272-4090.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sk

Marsha D Banks-Harold

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SUPERVISORY PATENT EXAMINER
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